

**REMARKS**

This application contains claims 1-21, 23-48 and 50-54, all of which were rejected in the Official Action. Reconsideration is respectfully requested in view of the remarks that follow.

Claims 1-18 and 28-45 were rejected under 35 U.S.C. 103(a) over Bajic (U.S. Patent Application Publication 2003/0227893) in view of Melpignano et al. (U.S. Patent Application Publication 2003/0003912) and further in view of Mangold et al. (U.S. Patent Application Publication 2002/0093929). Applicant respectfully traverses this rejection.

Claim 1 recites apparatus for mobile communication in which a plurality of access points in a WLAN share a common BSSID. Upon receiving an uplink packet, the access points convey messages over a LAN to a manager node via a switch. The manager node processes the messages so as to select one of the access points to respond to the uplink packet within a time limit specified by a predefined WLAN protocol. Meeting the time limit is problematic in the context of this sort of distributed operation, as explained in paragraphs 0010 and 0070 of US 2004/0156399 (the published version of this application). A number of specific solutions to this problem are described in the specification.

Bajic describes a network architecture in which a switch communicates with multiple repeaters, which communicate with mobile stations using the 802.11 WLAN protocol (paragraphs 0045-0047). The Examiner considered Bajic's switch 301 to be equivalent to the manager node in claim 1, and repeaters 302 to be equivalent to the access points, but acknowledged that Bajic fails to teach that his switch could operate in the manner recited in claim 1 while meeting the time limit imposed by the WLAN protocol.

Melpignano describes radio communication arrangements in which a master unit (access point AP) holds information about the topology of a shared resource network. As explained in response to the previous Official Action in this case, each of Melpignano's mobile terminals communicates at any given time with only a single access point. As a result, Melpignano clearly could not teach or suggest the features of operation of the manager node that are set forth above. In fact, as pointed out in Applicant's previous response, Melpignano teaches that a time limit for response should be intentionally allowed to expire, teaching away from responding within a specified time limit as recited in claim 1. In the present Official Action, the Examiner acknowledged that Melpignano, like Bajic, does not disclose that a manager node could process messages and then select and send an instruction to one of the access points to transmit a response to a mobile station within the time limit specified by a predefined WLAN protocol, as recited in claim 1.

Rather, the Examiner maintained that Mangold provides this missing teaching. Mangold describes a system and method for sharing bandwidth between co-located 802.11 and Hiperlan/2 systems in a WLAN (abstract). Mangold's system includes an access point (AP), which is coupled to a plurality of mobile stations and implements both the 802.11 and H2 MAC and PHY functions (Fig. 1, paragraph 0035). To prevent interference between 802.11 and H2 transmissions, the AP contains a "hybrid H2 centralized controller (CC) and a 802.11a/e hybrid coordinator (HC)," referred to by Mangold as a "CCHC," which controls time-sharing of the wireless bandwidth (paragraphs 0009, 0035, 0043). The AP periodically transmits control frames to the stations in the WLAN in order to enforce the desired time sharing (paragraph 0011, cited by the Examiner).

All of the above functions, however, take place within a single access point.

Mangold does not teach or suggest any sort of wired LAN or manager node. He does not even relate to time limits within which the access point must respond to an uplink packet from a mobile station. As far as the present patent application is concerned, Mangold teaches no more than the fact that an access point in a WLAN must observe time limits imposed by the WLAN protocol. He provides no teaching that would have been of use to a person of ordinary skill in solving the particular problem addressed by the invention of claim 1: To coordinate the operation of a plurality of access points using a manager node so that a selected access point transmits a response to an uplink packet within a time limit specified by the WLAN protocol.

Therefore, claim 1 is patentable over the cited art. In view of the patentability of claim 1, dependent claims 2-18 are also believed to be patentable.

Claims 28-45 recite methods for mobile communication based on principles similar to those implemented in the apparatus of claims 1-18. Therefore, claims 28-45 are believed to be patentable, as well, for the reasons explained above.

Claims 19-27 and 46-54 were rejected under 35 U.S.C. 103(a) over Bajic in view of Melpignano and further in view of Fox (U.S. Patent 5,787,085). In light of the previous cancellation of claims 22 and 49, the rejection of these claims is moot. Applicant respectfully traverses the rejection of claims 19-21, 23-27, 46-48 and 50-54.

Claim 19 recites apparatus for mobile communication in which a plurality of access points in a WLAN communicate over a LAN with a manager node via a switch. The manager node has a first port used exclusively for receiving uplink messages from the access points, and a second port used for conveying the messages to their destinations. The manager node has first and second addresses on the LAN, which are respectively associated with the first and second ports. The Examiner acknowledged

that neither Bajic nor Melpignano teaches these features of claim 19, but maintained that Fox provides the missing teachings.

Fox describes a system for optimizing data for transmission using a data collector and data assembler to transmit data blocks containing multiple data packets (col. 2, lines 1-9). In the embodiments described by Fox, these features are implemented in a digital cross-connect (DCC) system, which provides an  $M \times N$  connection matrix between  $M$  input ports and  $N$  output ports (col. 1, lines 22-36). Fox shows a local area network (LAN) 22 in Fig. 1, but makes no suggestion that it could be connected to his DCC system (col. 3, lines 29-43). He says nothing at all about access points, uplink messages received by the access points, or addresses on a LAN that might be associated with ports of the DCC system. The only "addresses" that Fox mentions belong to devices to which the  $M \times N$  is to transmit command data packets (col. 7, lines 3-5), and these addresses are distinct from the input and output port identifiers of the switch itself. Therefore, the relevance of Fox to the invention of claim 19 is questionable at best.

Furthermore, Fox does not teach or even hint that one of his input or output ports might be used exclusively for any purpose, let alone the purpose of receiving and conveying uplink messages from access points (which do not even exist in Fox's system). The Examiner appears to have ignored this limitation of the claim in his grounds of rejection. On the contrary: The very passage that the Examiner cited (col. 2, lines 10-30) emphasizes the versatility of Fox's  $M \times N$  switch in connecting any of the input ports to any of the output ports.

Therefore, claim 19 is patentable over the cited art, as are claims 20, 21 and 23-27, which depend from claim 19.

Claims 46-48 and 50-54 recite methods for mobile communication based on principles similar to those implemented in the apparatus of claims 19-21 and 23-27. Therefore, claims 46-48 and 50-54 are believed to be patentable, as well, for the reasons explained above.

Notwithstanding the patentability of the independent claims in this application, the dependent claims are also believed to recite independently-patentable subject matter. In the interest of brevity, however, Applicant will refrain from arguing the independent patentability of the dependent claims at present.

Applicant believes the amendments and remarks presented above to be fully responsive to all of the grounds of rejection raised by the Examiner. In view of these amendments and remarks, all of the claims in this application are believed to be in condition for allowance. Prompt notice to this effect is requested.

Respectfully submitted,



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